

# PRELIMINARY DISCUSSION DRAFT

September 20, 2012

## REPORT OF THE SERVICE SYSTEM DATA AND STATISTICAL INFORMATION INTEGRATION WORKGROUP

### I. INTRODUCTION

The Service System Data and Statistical Information Integration Workgroup (Data Workgroup) was established by SF 525, which began the process of redesigning Iowa's Mental Health and Disability Service (MHDS) system. This is the report of the Data Workgroup to Governor Branstad, the Joint Appropriations Subcommittee on Health and Human Services, and the Legislative Services Agency related to the data collection and reporting aspect of Redesign. This report is based on the activities outlined in SF 525 and SF 2315 that provide guidance for the Data Workgroup to examine these system aspects.

The legislation required the Data Workgroup to have representation from the Department of Human Services (DHS), the Department of Public Health (DPH) and the Iowa State Association of Counties (ISAC), and other stakeholders. A complete membership list is included in Appendix B of this report. The report provides recommendations regarding the implementation provisions for an integrated data and statistical information system for mental health, disability services, and substance abuse services. These recommendations address the changes that will be required to ensure that the data collection and reporting system utilized within the MHDS system is as efficient and effective as possible.

### II. METHODOLOGY

The workgroup met five times over a period of eight months. The meeting schedule is included in Appendix A of this report. All meetings were open to the public, and all agendas and relevant meeting materials were posted on the MHDS Redesign website prior to meeting (<http://www.dhs.state.ia.us/Partners/MHDSRedesign.html>).

The group spent much of the first meeting discussing the steps they thought necessary to examine the task at hand. The workgroup determined that it would be necessary for all members to have a basic knowledge of the different data systems that are used in the MHDS system. Workgroup members gave presentations over their respective data systems during the second meeting, and then the last three meetings centered on intense discussions over the factors the members determined would be necessary to address these changes.

Workgroup members have organized their recommendations to address specific changes within the data collection and reporting system they feel necessary in order to make the system as efficient and effective as possible. Recommendations are listed in the following section, and each recommendation is followed by a brief summary of the discussion that led to the decision.

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## III. WORKGROUP RECOMMENDATIONS

- **Entities within the MHDS system will not be required to use the same operational/transactional system.**

Workgroup members acknowledge that there are many different entities within the MHDS system that gather, enter, report and utilize data. These entities vary from providers, Central Points of Coordination Administrators (CPCs), case managers, to funders. These entities have already invested time, money, and effort into developing data collection and management systems that work for their business purposes and role within the MHDS system. Accordingly so, these entities should not have to abandon their prior efforts to create effective data collection systems that work within their business setting for an entirely new data management system.

Instead of focusing efforts to redo the entire data management system, the workgroup members recommend that efforts focus on improving the ability of existing data collection, management, and reporting systems to interface with one another and share information more effectively. This will require all entities within the MHDS system to determine their role in the data collection process, and then transmit the information collected to a central data repository where it can be warehoused and accessed by other entities in the MHDS system. A more detailed conceptual framework describing this process is attached as Appendix C and summarized in the second Data Workgroup recommendation.

Workgroup members do realize that there may be benefits to moving entities to using a single system. Currently, there is no single system statewide that would meet this need. However, the workgroup feels that entities should have the opportunity to buy into an emerging system.

- **Operational/transactional systems need to have the capability to be linked and exchange information. This information needs to be labeled consistently and have the same definition.**

Many of the entities within the MHDS system collect similar if not the same information from consumers and family members. This leads to duplication of efforts on behalf of the providers and funders, and places increased burden on consumers, family members, and providers to furnish the necessary information. The data collection system will be much more effective if it were possible to spread out data collection efforts across entities and then transmit the data to a centralized data repository where it can be stored and accessed by other entities. This concept is illustrated in Figure 1 of Appendix C of this report and outlined below.

### I. Data Landing Zone

- 1) Identify entities that have data we want to collect.
  - MHDS, CDR (IDPH), CSN, Other County Systems, State Facilities, Providers, IME, Magellan, etc.
- 2) Develop a unique client identifier.

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- 3) Identify the primary data elements that will first be reported. Prioritize these elements in rank order.
- 4) Identify core and extended data elements that should be collected. This data should be collected from the entity with the most current/accurate data.
  - Core Data = Client Demographics
  - Extended Data = Services, Diagnoses, Payments, etc.

**NOTE:** The document suggests collecting more data than needed since it will be easy to collect all the data up front. This should be weighed carefully since one of the Data Workgroup goals is “Not to collect more data than what is used”.

- 5) Determine fields/format of data being collected from entities.
- 6) Load Data into Data Warehouse.
- 7) Data cleansing and standardization should be performed as well as validation of data elements for quality assurance. (Check for duplicates)

## II. Integrated Data Zone

- 1) Design the initial integrated data model taking into account the data needed for the reporting element. *Pay special attention to the design of the core data model.* Focus on the data elements required to be reported on. Leave behind the extra data elements in the Data Landing zone that have been sourced but do not have requirements held against them.
- 2) Run reports from this level or continue to the Data Usability Zone.

## III. Data Usability Zone

- 1) Identify data marts that will be created and used to allow the necessary data access.
- 2) Determine how the data will be accessed and by whom.
- 3) Considerations need to be made to performance, availability, security, and various other requirements.

(Will expand on this section after the next meeting...)

Complications with the information linkage and exchange in the current MHDS system stem from the fact that information is not labeled consistently and therefore cannot be easily extracted and exchanged between entities. The workgroup recommends that information in the MHDS data exchange system needs to be labeled in a way that all entities know what the data represents. In order for this to happen, the data definitions must also be consistent so that the data has the same meaning for each entity.

- **Privacy and security needs to be maintained consistent with defined roles and responsibilities.**

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Information collected by the entities in the MHDS system can be warehoused so other entities are able to access certain pieces of the information from a central repository instead of having to collect it themselves. This repository will hold a vast amount of personal client information, and workgroup members recognize that not every individual who has access to the data repository will need to access all of the information collected.

It is possible to establish appropriate privacy screens by restricting access to information in accordance with the roles that entities play in a client's care. For example, information about a client seeking substance abuse services should not be accessed by a provider who is not seeing the client or who does not provide substance abuse services. This privacy screen will have to be established and monitored. *(Will build on this section after the next meeting discussion...)*

- **An organized, coordinated effort among all MHDS stakeholders should be in place to minimize the cost of operational/transactional systems now and in the future.**

Workgroup members realize the importance of having an efficient and effective data collection system. However, workgroup members also recognize and emphasize that the purpose of Redesign was to improve services across the state. Workgroup members do not want to lose this focus, and recommend that all stakeholders involved in the MHDS system should work to ensure that the costs associated with operational and transactional data systems be minimized to maintain system focus on providing services to consumers. Many factors that minimize the cost of operational and transactional systems have already been discussed in this report. Streamlining data collection efforts and minimizing duplication of data save both time and resources, and consistent data labeling throughout the data warehouse system will assist in this process.

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## **Appendix A Workgroup Charge and Meeting Schedule**



## Service System Data & Statistical Information Integration Workgroup Charge

Source: Iowa Department of Human Services

Date: July 2, 2012

### MISSION

To develop an integrated data and statistical information system for mental health, disability, and substance abuse services

### GOALS

- The Workgroup shall make recommendations for establishing the specifications of electronic, integrated service and funding data, demographic, diagnostic, and statistical information system for all persons receiving publically funded mental health and disability services.
- The new system will:
  - Build on what currently exists.
  - Exchange data within existing systems.
  - Not cause undue burden on consumers or providers.
  - Not collect more data than what is used and use data that is collected.
  - Create a process to ensure data integrity.
  - Be forward thinking and flexible.
  - Determine who will report and define compliance measures.
  - Demonstrate that the public investment made is resulting in positive change.

### MEMBERSHIP

\*See attached.

### TASKS

For an effective data and statistical information system to be realized, several tasks will need to be completed.

- Review current data collection tools, resources, reports, and types of data collected from current departments and providers.
- Conduct a gap analysis.
- Research other states' data collection and integration systems and best practices.
- Identify federal and state requirements for data collection and output.
- Identify "points of pain".

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- Balance need for standardization with flexibility with how to accomplish the outcome.
- Determine how data will be communicated.
- Consider HIPAA requirements when determining data collected and outcome and performance measures.
- Establish maintenance management.
- Create a comprehensive list or map of what the integrated system will look like and what it will do.
- Create a list of priorities for developing and rolling out the system.
- Work with other groups to develop a set of guidelines for data collection and output.
- Create a recommendations report that includes the specifications for data collection, a timeline, and a budget.

## REPORT DUE

December 14, 2012

## TIMELINE

Schedule	Date	Task
Meeting 1: Iowa State Association of Counties, Des Moines	Friday, March 30, 2012; 11:00am-2:00pm	Achieve goals set forth in the agenda and charge.
Meeting 2: Polk Co. River Place, Des Moines	Tuesday, August 7, 2012; 10:00am-3:00pm	Achieve goals set forth in the agenda and charge.
Meeting 3: Polk Co. River Place, Des Moines	Wednesday, August 29, 2012; 10:00am-3:00pm	Achieve goals set forth in the agenda and charge.
Meeting 4: Polk Co. River Place, Des Moines	Wednesday, September 26, 2012; 10:00am-3:00pm	Achieve goals set forth in the agenda and charge.
Meeting 5: Polk Co. River Place, Des Moines	Wednesday, October 24, 2012; 10:00am-3:00pm	Achieve goals set forth in the agenda and charge.
Meeting 6: Conference Call	Tuesday, November 27, 2012	Workgroup review of draft report.
Final Report Due	Friday, December 14, 2012	Final report submitted to Governor and General Assembly.
Final Report Distribution	Friday, December 14, 2012	Final report emailed to Workgroup members and posted to Redesign website.

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## **Appendix B Workgroup Membership List**



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## Service System Data and Statistical Information Integration Workgroup

<b>Chair</b> -Shults, Rick	Department of Human Services-Division of Mental Health and Disability Services	Division Administrator
<b>Co-Chair</b> -Harlow, Robin	Iowa State Association of Counties (ISAC)	Technology Manager
<b>Co-Chair</b> -Stone, Kathy	Iowa Department of Public Health	Division Director
Dowell, Karen	Black Hawk County	Funding Coordinator
Duhn, Sue	Dickinson County	Privacy Officer
Eaton, Jill	Marshall County	Central Point of Coordination Administrator
Fontanini, Gina	Iowa State Association of Counties (ISAC)	
Gabbert, Kevin	Iowa Department of Public Health (IDPH)	Executive Officer 2 - Access to Recovery
Graves, Kris		Mental Health Consumer
Grush, John	Boone County	Central Point of Coordination Administrator
Holmes, Jody	Iowa Medicaid Enterprise (IME)	CORE Unit Manager/HIT Project Director
Kaestner, Cindy	Abbe Center for Community Mental Health	Vice President/Executive Director
Maguire, Lonnie	Shelby, Harrison & Monona Counties	Central Point of Coordination Administrator
Novak, Sue	Linn County	Budget Manager Director
Petersen, Dennis	Magellan of Iowa	Operations Director
Preuss, Eric	Iowa Department of Public Health (IDPH)	Executive Officer 2 - Iowa Plan
Sample, Joseph	Iowa Department on Aging	Aging and Disability Resource Center Director
Seehase, Susan	Exceptional Persons	Services Director
Walters-Crammond, Karen	Polk County Health Services	Program Planner for Budget
Watson, Sam	Iowa State Association of Counties (ISAC)	

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## **Appendix C**

### **Data Warehouse Conceptual Framework & Outline**

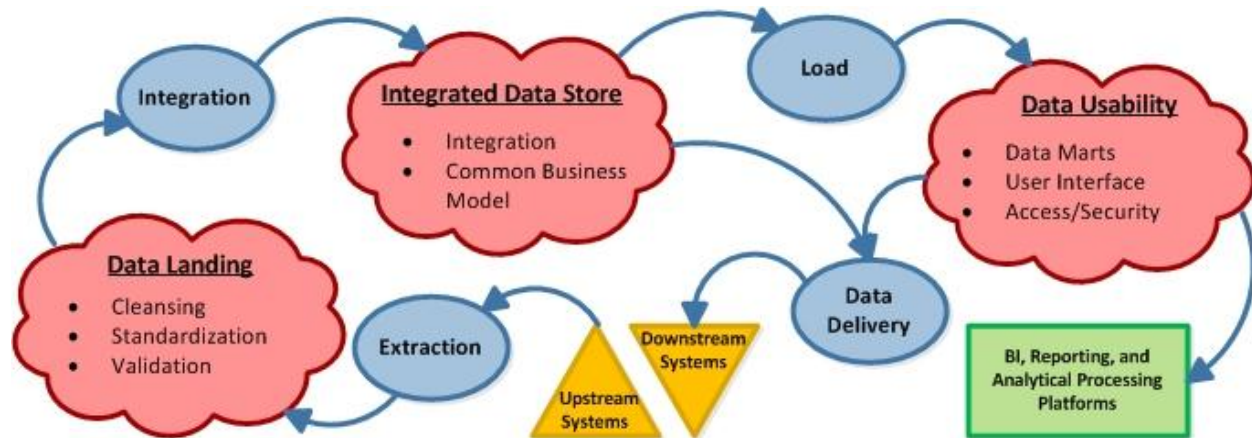
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## Data Warehouse – Planning Broadly & Executing Modularly

### Warehouse Environment Overview

**Figure 1:** Depicts the *logical architecture* of the major functions and data flow through a data warehouse environment.



**The Red Zones (or major stores of data)** - Common to each zone the *staging area* is used to collect input and perform work in progress. The *publishing area* is used to make data available for downstream consumption. In order to reliably connect the red zones together it is important that there is a well-established protocol for what data can be consumed downstream and when this can occur. Separation of staging and publishing establishes this definition. Each of the three red zones is defined below:

- **Data Landing Zone** - Point of interface from external sources of data into the warehouse environment. This is also the place where data cleansing and standardization can be performed as well as validation of data elements for quality assurance.
- **Integrated Data Zone** - This is the point where the various sources are integrated into a common model that is organized around the enterprise business data model instead of the data model of each source system. *Creating a well formed integrated data model is the single most important piece of the data warehouse environment because this will serve as the foundation for how easy or hard it will be for the downstream decision support and analytical functions to be performed.*
- **Data Usability Zone** - This is the point of interface with end users. The data is available for access by business intelligence and reporting platforms in order to fulfill decision support and analytical functions.

**The Blue Zones (or flow of data)** - Represent the extract, transform, and load (ETL) processes that are responsible for moving data from one point to another and converting the data into the desired structure. *It is important to distinguish between duplication of data and replication of data.*

- **Extraction** - This addresses sourcing data from upstream systems. *The major emphasis is on acquiring the necessary source system data.* There can be processing to clean up, validate, and standardize data elements.

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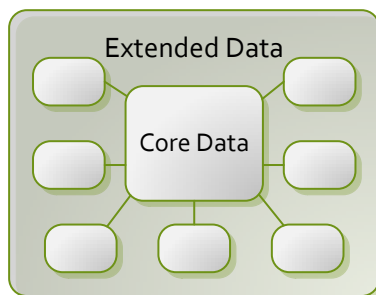
- Integration - This addresses significant transformation to combine the data from separate source systems into a common, integrated data model. *This is typically the most complex and performance sensitive processing within the data warehouse environment.*
- Loading - Since the data is already integrated into a common model the processing involved is fairly straightforward. However, there may be conversion of the model from a relatively normalized design (in the Integrated Data Source) to a dimensional design (in the Data Usability Zone)
- Delivery - This addresses being able to provide data extracts to downstream targets

## The Integrated Data Model

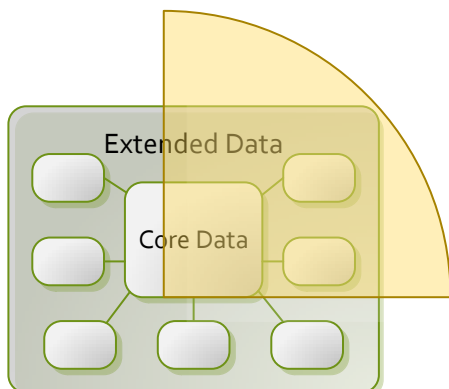
Being able to plan to work globally and execute modularly is tied to these basic two observations regarding the integrated data model:

- 1) You do not need to have all of the data in the data warehouse for some of the data to be of use for decision support and analytics. Taking advantage of this observation allows for a project to be executed modularly.
- 2) As additional data is sourced in the data warehouse environment, it will relate to existing data already in the environment. Taking advantage of this observation results in a better data model, providing consistent quality, high performance, and low cost. This requires one to plan globally.

**Figures 2, 3, and 4 below help to illustrate and expand on these observations.**

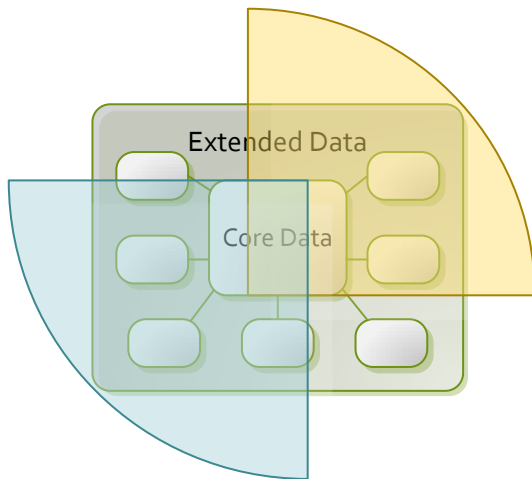


**Figure 2:** Core data and Extended Data Comprising an Integrated Data Model. *Core data* is the fundamental data that describes the business. This data is used prevalently for many decision support and analytic functions. *Extended data* is more specialized data that deeply describes a specific area of the business.



**Figure 3:** A “slice” of the integrated data model that describes a primary business function

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**Figure 4:** Data Groupings for Two Business Functions, Showing Their Overlap

Handling the overlap is crucial to the sustained success of the data warehouse environment. The integrated data model needs to keep a singular data model, meaning that there is only one definition for a business entity and attributes are in one and only one place. It is the strict observance of this practice that results in an overall integrated data model. By planning broadly across a number of business functions and the corresponding source systems, the work program can be

modularized and prioritized thereby allowing for incremental delivery of value based on the needs of the business.

It is important that the business function that is sourced first, establishes the common data into an integrated model so that it is available to the second business function which then only has to add the additional data from sources not yet extracted.